

### Patent Claims

1. Method for reprocessing used PET bottles, comprising the steps:
  - a) shredding (101, 201) the bottles to yield plastic flakes,
  - b) sorting the plastic flakes (103, 104) according to at least one criterion into at least two partial quantities, and
  - c) industrial reprocessing treatment optionally including decontamination treatment.
2. Method according to Claim 1, whereby the plastic flakes in step b) are sorted according to difference in size and/or difference thickness and/or difference in weight and/or difference in density and/or difference in crystallinity.
3. Method according to Claim 1 or 2, whereby the flakes are sorted in such a way that a first partial quantity consists of at least approximately 95%, especially at least 98%, plastic flakes of thick-walled parts of the beverage container, especially the bottle head, and a second partial quantity consists of at least approximately 75%, especially at least 98% plastic flakes of thin-walled parts of the beverage container.
4. Method according to any one of Claims 1 through 3, whereby the first partial quantity is reshredded in process step c) in another shredding step (104).
5. Method according to Claim 4, whereby the first partial quantity and the second partial quantity are combined again after the step (104) for reshredding the first partial quantity and then the combined quantities are decontaminated jointly.
6. Method according to any one of Claims 1 through 5, whereby a pneumatic table (303) is used in the sorting step b).

7. Method according to any one of Claims 1 through 5, whereby the sorting step b) includes a density separation as a function of crystallinity in a liquid medium.
8. Device for reprocessing used PET bottles, comprising a shredding system (300) for shredding the plastic containers to yield plastic flakes, a sorting system (303) for sorting the plastic flakes according to at least one criterion into at least two partial quantities and a decontamination system (309, 310) for decontaminating the plastic flakes.
9. Device according to Claim 8, characterized in that the sorting system comprises a pneumatic table (303).
10. Device according to Claim 9, characterized in that the sorting system comprises a screen device.